Series of 1:24K Digital Raster Graphics of Wisconsin

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:
> *Citation:*
>> *Citation_Information:*
>>> *Originator:* US Geological Survey
>>> *Publication_Date:* 19980228
>>> *Title:* Series of 1:24K Digital Raster Graphics of Wisconsin
>>> *Geospatial_Data_Presentation_Form:* map
>>> *Publication_Information:*
>>>> *Publication_Place:* Madison, WI
>>>> *Publisher:* Wisconsin Department of Natural Resources (WiDNR)
>>> *Other_Citation_Details:*
>>>> This metadata refers to the series of individual 24K DRGs with map collars, in GeoTIFF format. Separate metadata exists for the series of 'collarless' 24K DRG's (TIFF), and the series of 24K DRGs in ArcInfo GRID format.
>>> *Online_Linkage:* <Wisconsin DNR Digital Raster Graphics web page.>
>>> *Online_Linkage:* <DRG Download Theme in the DNR WebView web mapping application.>
>>> *Online_Linkage:* <DNR GIS Data Repository Home Page.>
> *Description:*
>> *Abstract:*
>>> The Digital Raster Graphic (DRG) is a raster image of a scanned USGS topographic map including the 'map collar' information. The DRGs accompanying this metadata have been enhanced by the Wisconsin Department of Natural

Resources (DNR) and converted from the original UTM grid as provided by USGS, to the Wisconsin Transverse Mercator (WTM) coordinate system based on the 1991 adjustment to the North American Datum of 1983 (WTM83/91).

Purpose:

A DRG is useful as a source or background layer in a GIS, as a means to perform quality assurance on other digital products, and as a source for the collection and revision of DLG data. DRGs can also be merged with other digital data, e.g. Digital Elevation Models or Digital Orthophotos, to produce a hybrid digital file.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date:

VARIES; refer to the original USGS DRG metadata or to the DRG 'map collars' for specific information.

Currentness_Reference: Ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Irregular

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -92.75

East_Bounding_Coordinate: -87.08

North_Bounding_Coordinate: 47.08

South_Bounding_Coordinate: 42.50

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: digital raster graphic

Theme_Keyword: DRG

Theme_Keyword: topographic map

Theme_Keyword: imageryBaseMapsEarthCover

Place:

Place_Keyword_Thesaurus:

Department of Commerce, 1977, Countries, Dependencies, Areas of Special Sovereignty, and their Principal Administrative Divisions (Federal Information Processing Standard 10-3): Washington, Department of Commerce, National Institute of Standards and Technology.

Place_Keyword: Wisconsin

Access_Constraints: None

Use_Constraints:

Acknowledgment of the USGS would be appreciated in products derived from these data.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: Wisconsin Department of Natural Resources, Bureau of Technology Services

Contact_Position: GIS Data Specialist

Contact_Address:

Address_Type: mailing address

Address: P.O. Box 7921

City: Madison

State_or_Province: WI

Postal_Code: 53707-7921

Country: USA

Contact_Electronic_Mail_Address: geodata@dnr.state.wi.us

Hours_of_Service: Normal business hours or as available

Data_Set_Credit:

The original DRGs were produced through an Innovative Partnership agreement between The Land Information Technology Company, Ltd., of Aurora, CO and the USGS.

Native_Data_Set_Environment:

TIFF; Data Format Version Number - 6.0; Resident Computer Operating System - DEC (Digital Equipment Corporation) Alpha 2100 server running Pathworks and OSF version 4.0a (Digital Unix); Resident Size of Dataset - Approx. 5-12 MB per DRG

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

The DRG is an 8-bit color image that employs a color palette to ensure uniform colors throughout a particular DRG series. All DRGs within a series must have the same RGB value.

Logical_Consistency_Report: None

Completeness_Report:

The DRG is a faithfully reproduced digital image of the original source map. Some differences may be detected between the source graphic used and the DRG due to the RGB values assigned that particular color. The intent is to recreate those colors as nearly as possible. Data completeness for DRG files reflect content of the source graphic. Features may have been eliminated or generalized on the source graphic due to scale and legibility constraints. For information on collection and inclusion criteria, see U.S. Geological Survey, 1994, Standards for 1:24,000-Scale Digital Line Graphs and Quadrangle Maps: National Mapping Program Technical Instructions and U.S. Geological Survey, 1994, Standards for Digital Line Graphs: National Mapping Program Technical Instructions.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

While the datum of the published map is retained to be consistent with other USGS digital data, this image is cast on the UTM and may be INCONSISTENT with the credit note on the image collar. [NOTE: The preceding is from the original USGS DRG metadata. Refer to the Lineage section of this metadata report for information about subsequent DRG processing by WiDNR.]

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report:

Refer to the DRG collar for information about vertical positional accuracy.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: USGS

Publication_Date: Varies

Title: Varies

Geospatial_Data_Presentation_Form: Map

Publication_Information:

Publication_Place: Reston, VA

Publisher: USGS

Source_Scale_Denominator: 24000

Type_of_Source_Media: Paper

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: Varies

Source_Currentness_Reference: Ground condition

Source_Citation_Abbreviation: map1

Source_Contribution: The source map is scanned to produce the DRG.

Process_Step:

Process_Description:

The production procedures, instrumentation, hardware, and software used in the collection of standard DRG products vary depending on systems used at the contract, cooperator or USGS production sites. The majority of DRG data sets are acquired through government contract. The process step describes, in general, the process used in the production of standard DRG data sets.

1. Production of a DRG begins with the scanning of a paper 7.5-minute topographic map (map1) on a high-resolution scanner. Scanning resolutions range from 500 - 1000 dpi with the output file running between 160-300 mb.

2. Removal of screens (descreening) and color quantization to reduce the number of colors also takes place during the scanning phase.

3. The raw scan file is then transformed and georeferenced using UTM coordinates of the sixteen 2.5-minute grid ticks, which are obtained using the in-house produced program COORDAT and stored in a ground control file. Those sixteen 2.5-minute ticks are interactively visited and assigned their respective UTM coordinates. USGS program XSHAPES4 then performs a piecewise linear rubber sheet transformation.

4. An output resolution of 2.4 meters (8.2 feet) is chosen in order to resample the file to 250 dpi.

5. The image file is converted to a TIFF and further reduced by converting the file to a run length encoding Packbits compression(type 32773).

6. The color palette of the compressed DRG is then standardized by replacing the original RGB values assigned during the scanning process with standard RGB value combinations using the in-house produced TIFFREMAP program.

7. Prior to archiving the DRG undergoes the following quality assurance procedures:

a. The color index values of each DRG are checked to ensure the RGB combinations are consistent with the standardized color palette.

b. All DRG files are inspected to ensure that they are geometrically consistent with normal map presentation.

c. Selected DRG's are checked to ensure that data elements in the DRG metadata file correspond to the map collar information and to the information in the associated image file.

d. Selected DRG's are checked for georeferencing accuracy by comparing the book value of latitude and longitude tick marks with corresponding tick intersections in the DRG image.

e. Transformations are checked on selected DRG's by comparing the positions of well defined points, such as UTM grid intersections in the graphic product, with the corresponding image points in the DRG.

USGS DRG production specifications are available on request from the National Mapping Division and Mid-Continent Mapping Center by contacting:

Rolla-ESIC U.S. Geological Survey 1400 Independence Rd., MS231 Rolla, MO 65401-2602 Phone (573) 308-3500 Facsimile (573) 308-3615 E-mail to mcmcesic@usgs.gov World Wide Web: <http://mcmcweb.er.usgs.gov/>

[The preceding Lineage information is from the original USGS metadata. The following paragraphs describe subsequent processing carried out by the DNR Geographic Services Section after receiving copies of the USGS DRG product described above.]

8. The 'collar' surrounding the map portion of each DRG containing ancillary information about the printed map, such as scale bars, legend and attribution, was reclassified by DNR staff to a distinct range of pixel values in the scanned image (values 20 through 32). This enables ArcView users to optionally 'turn off' the DRG map collar for display purposes. In the process, the format of the images was converted to GeoTIFF.

9. The DRGs were converted to the Wisconsin Transverse Mercator (WTM) coordinate system, based on the 1991 adjustment to the North American Datum of 1983 (WTM83/91).

Two additional series of DRGs were created: a series of TIFF images with the collars removed (collarless); and a collarless series in GRID format.

Source_Used_Citation_Abbreviation: map1
Process_Date: 19980228

Spatial_Data_Organization_Information:
    Indirect_Spatial_Reference: None
    Direct_Spatial_Reference_Method: Raster
    Raster_Object_Information:
        Raster_Object_Type: Pixel
        Row_Count: Varies
        Column_Count: Varies

Spatial_Reference_Information:
    Horizontal_Coordinate_System_Definition:
        Planar:
            Map_Projection:
                Map_Projection_Name: Transverse Mercator
                Transverse_Mercator:
                    Scale_Factor_at_Central_Meridian: 0.9996
                    Longitude_of_Central_Meridian: -90.000
                    Latitude_of_Projection_Origin: 0.0
                    False_Easting: 520000.0
                    False_Northing: -4480000.0
            Planar_Coordinate_Information:
                Planar_Coordinate_Encoding_Method: row and column
                Coordinate_Representation:
                    Abscissa_Resolution: 2.438400
                    Ordinate_Resolution: 2.438400
                Planar_Distance_Units: meters
        Geodetic_Model:
            Horizontal_Datum_Name:
                North American Datum 1983, 1991 adjustment
            Ellipsoid_Name: Geodetic Reference System 1980
            Semi-major_Axis: 6378137
            Denominator_of_Flattening_Ratio: 298.25722210088

Entity_and_Attribute_Information:
    Overview_Description:
        Entity_and_Attribute_Overview:
            Each raster entity or pixel contains a color index from 0 through 12 referencing a color palette of RGB values from 0 through 255 in which the standard colors used in the DRG are defined.

USGS DRG Color Palette

Digital #	Color	Red	Green	Blue
0	Black	0	0	0
1	White	255	255	255
2	Blue	0	151	164
3	Red	203	0	23
4	Brown	131	66	37
5	Green	201	234	157

6	Purple	137	51	128
7	Yellow	255	234	0
8	Light Blue	167	226	226
9	Light Red	255	184	184
10	Light Purple	218	179	214
11	Light Grey	209	209	209
12	Light Brown	207	164	142

The above color palette information applies for the map portion of the DRGs. Following WiDNR processing of the DRG 'map collars', the following color palette applies for the map collar portion of the DRGs:

DRG Map Collar Color Palette

Digital #	Color	Red	Green	Blue
20	Black	0	0	0
21	White	255	255	255
22	Blue	0	151	164
23	Red	203	0	23
24	Brown	131	66	37
25	Green	201	234	157
26	Purple	137	51	128
27	Yellow	255	234	0
28	Light Blue	167	226	226
29	Light Red	255	184	184
30	Light Purple	218	179	214
31	Light Grey	209	209	209
32	Light Brown	207	164	142

Entity_and_Attribute_Detail_Citation:
National Mapping Program Standards for USGS Digital Raster Graphics: <http://rmmcweb.cr.usgs.gov/public/nmpstds/drgstds.html>

Distribution_Information:
  Distributor:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization: Wisconsin Department of Natural Resources
      Contact_Position: GIS Data Specialist

Contact_Address:
    Address_Type: mailing address
    Address: P.O. Box 7921
    City: Madison
    State_or_Province: WI
    Postal_Code: 53707-7921
    Country: USA
Contact_Electronic_Mail_Address: geodata@dnr.state.wi.us
Hours_of_Service: Normal business hours or as available

Resource_Description: Downloadable data
Distribution_Liability:
Refer to <http://www.dnr.state.wi.us/org/legal/WebSiteLegalInformation.html>
Standard_Order_Process: Refer to <the DNR GIS website>

Digital_Form:
    Digital_Transfer_Information:
    Format_Name: GeoTIFF
    Format_Version_Number: 6.0
    File_Decompression_Technique: Packbits
    Transfer_Size: 5 to 12 MB per DRG, approximate
    Digital_Transfer_Option:
    Online_Option:
        Computer_Contact_Information:
        Network_Address:
            Network_Resource_Name: <Wisconsin DNR Digital Raster Graphics web page>

    Offline_Option:
    Offline_Media: CD-ROM
    Recording_Format: ISO 9660
    Compatibility_Information:
    ISO 9660 format allows the CD-ROM to be read by most computer operatiing systems.

Fees:
Refer to < the DNR GIS website. html>

Metadata_Reference_Information:
Metadata_Date: 20031120, 20050407/dt>
Metadata_Review_Date: 20050407
Metadata_Contact:
    Contact_Information:
    Contact_Organization_Primary:

Contact_Organization: Wisconsin Department of Natural Resources
Contact_Person: John Laedlein
Contact_Position: GIS Data Specialist
Contact_Address:
Address_Type: mailing address
Address: P.O. Box 7921
City: Madison
State_or_Province: WI
Postal_Code: 53707-7921
Contact_Electronic_Mail_Address: geodata@dnr.state.wi.us
Metadata_Standard_Name: FGDC CSDGM
Metadata_Standard_Version: FGDC-STD-001-1998

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